



the RARA RAG

Published by
ROCHESTER AMATEUR RADIO ASSOCIATION, INC.

VOL. 57

April, 2005

NO. 8

April Meeting for the Homebrewers

By Tim Magee, WB2KAO
Vice President, RARA

Ned Asam, W2NED, will give a presentation entitled "When Ham Radio Gear Doesn't Work - A Debugging Strategy." According to Ned, "the goal is to encourage hams to work on their own gear, and not be afraid to tackle construction projects." After the presentation, Ned will demonstrate debugging and alignment methods using Elecraft K2 and KX1 transceivers. Ned's objective is to give us confidence to work under the hood with basic test equipment.

Ned was first licensed as K2YSD in 1957 and holds an MSEE from Southern Methodist University in Dallas. He currently works for Xerox in Webster. Ned notes that for the past 5 years he has been enjoying QRP and portable operations with the Elecraft rigs.

WANTED:

Good Woman. Must be Extra class Amateur, do 30 wpm and type 60 wpm on RTTY, use all current contest logging software and climb 100 foot towers. Must be good cook and housekeeper. Send picture of self on top of tower to:

pm2k@youaretheone.com

RaRa MEETING

April 1, 2005

7:30 P.M.

Henrietta Fire Hall #1
3129 East Henrietta Road

**When Ham Radio Gear
Doesn't Work**

HAMFEST FLEA MARKET - SPECIAL RESERVED AREA

By Harold Smith, K2HC
Hamfest General Chairman

The outdoor flea market parking area will open for setup at 6 a.m. Friday, June 3. The flea market area will be closed to everyone prior to that time. After the 6 a.m. opening, the flea market will run continuously throughout the weekend. All flea market vendors along with their staff must have a Hamfest registration ticket -- \$9.00 per person.

Premium spaces in a special reserved section of the flea market area along the roads northeast of the main entrance of the Dome Center may be reserved in advance. Each premium space measures 10 feet (road frontage) by 25 feet deep. Cost for each premium space is \$30. Multiple premium spaces may be reserved. All orders must be in our hands not later than May 15, 2005. Special premium spaces are NOT available at the gate. Premium spaces will be assigned according to the postmark date on your order.

DRUMLINS HAMFEST - APRIL 9

Spring is here, and the local 'Hamfest Season' is about to start. The Drumlins Amateur Radio Club Ltd. Will hold their annual Hamfest on April 9, 2005. The location is the Marbletown Fire Hall located at 6416 Silver Hill Rd., Newark, NY. The Hamfest opens to the public at 8:00AM.

For directions, maps and additional information go to the Drumlins Hamfest web site at:

www.drumlinsarc.com/hamfest.htm

SILENT KEYS

Reynold A. Grammer, Jr., KA2CQQ

February 25, 2005

J. Richard Briemer, W2OTW

March 13, 2005

the RARA RAG

PUBLISHED BY
ROCHESTER AMATEUR RADIO ASSOCIATION, INC.

P.O. Box 93333, Rochester, NY 14692-8333

RaRa Hotline (585) 442-0587

Website: www.rochesterham.org

Editor.....Dick Goslee, KG2I
24 Elaine Drive, Rochester, NY 14623 (585) 334-1762
Internet: rgoslee@rochester.rr.com

Managing Editor.....Larry Wallnau, W2ZEY
742 Stone Rd., Pittsford, NY 14534 (585) 389-1926
Internet: contax2@rochester.rr.com

Advertising Manager.....Dick Goslee, KG2I
24 Elaine Drive, Rochester, NY 14623 (585) 334-1762
Internet: rgoslee@rochester.rr.com

VOL. 57 April, 2005 NO. 8

OFFICERS:

President: Brad Armstrong, W1YX.....(315) 986-8638
Internet: wlyx@arrl.net

Vice-President: Tim Magee, WB2KAO.....865-0384
Internet: wb2kao@yahoo.com

Secretary: Bill Kasperkoski, WB2SXY.....334-7640
Internet: wb2sxy@arrl.net

Treasurer: George Masny, KA2GPJ.....377-7853
Internet: ka2gpj@arrl.net

BOARD OF DIRECTORS:

George Platteter, AA2FO.....334-4488
Internet: aa2fo@localnet.com

Keith Freeberg, N2BEL.....254-0722
Internet: n2bel@frontiernet.net

Mike Toombs, KB2WPT.....328-2617
Internet: kb2wpt@arrl.net

Bill Hopkins, AA2YV.....588-5009
Internet: wihopkin@naz.edu

Peter Fournia, W2SKY.....377-0535
Internet: pfournia@rochester.rr.com

Doug Howard, KC2KNH.....425-2731
Internet: doug.howard@usa.xerox.com

Jim DiTucci, N2IXD.....426-7956
Internet: n2ixd@arrl.net

Club Historian.....Ed Gable, K2MP

Public Service Coordinator.....Keith Freeberg, N2BEL

License Testing Coordinator.....Cheryl Joyce, AB2NU

Membership Chairman.....George Masny, KA2GPJ

Hamfest General Chairman.....Harold Smith, K2HC

Media Communications.....Larry Wallnau, W2ZEY

License Class Chairman.....

Awards Chairman.....Greg Michels, KC2GXV

Education Chairman.....Peter Fournia, W2SKY

Web Page Administrator.....Peter Fournia, W2SKY

RARA Directory Editor.....Dick Goslee, KG2I

Club Station Trustees.....K2JD, Ed Holdsworth, N2EH

W2EOC, Brad Armstrong, W1YX

The RaRa RAG (USPS 605-440) is published monthly except July and August by the Rochester Amateur Radio Association, Inc., 24 Elaine Drive, Rochester, New York 14623. Subscription is \$5.00 per year (included in the annual membership dues). Periodicals postage paid in Rochester, NY 14692

POSTMASTER - Send address changes to The RaRa Rag, P.O. Box 93333, Rochester, New York 14692-8333. Full permission is granted for reprinting articles provided a credit line is given to the *RaRa Rag*. The *RAG* exchanges, with other organizations' publications.

RaRa Rag 2

Sidebands – "Amateur Radio in the News"

By Larry Wallnau, W2ZEY
RARA Media Communications

Margie Wyli wrote an investigative piece on BPL for the March 6 *New Jersey Star Ledger*. It is among the most intelligent and balanced reports I have read. Among the many points she made, Wylie noted that despite President Bush and (former) FCC Chairman Powell's enthusiasm, many power companies are approaching BPL cautiously because they were burned by telecommunications investments in the 1990s. Accordingly, BPL trials have been limited to small areas.

Economics will play an important role in the future of BPL. Supporters of BPL argue that it is a good solution to bridge the last few miles of rural broadband service. It is also argued that it will save electric customers money by preventing power outages. "Smart" BPL power lines could, for example, turn off home air conditioners for 10 – 20 minutes if demand gets critically high and a brown-out or black-out is imminent. The bottom line for the power companies is how marketable BPL will be to consumers. BPL signals must be boosted every 1500 feet. In experimental markets, subscribers have been charged as much as \$100 for the installation of the in-home equipment.

Wylie closes by noting, "The Commerce Department's National Telecommunications and Information Administration, in a report last year, warned that BPL signals, which leak from unshielded overhead electrical lines, could interfere with nearby bands used by any of the 59,000 licensed users, including police, fire and other homeland security and emergency communications. Ham radio operators have complained of interference from pilot projects, and are lobbying heavily against BPL deployments."

* * *

RaRa members aren't the only hams that enthusiastically support Skywarn. The *Midland Daily News* ran an article announcing Skywarn training at the Midland Law Enforcement Center. It noted that "the majority of civilian volunteers are amateur radio operators," and went on to describe the statewide network of repeaters used by ham radio operators to track severe storms in real time. Compared to Rochester, the plains of Texas get more than their share of severe spring and summer storms.

* * *

Rep. Michael Bilirakis (R-FL) is the sponsor of The Amateur Radio Spectrum Protection Act of 2005. It has been introduced to the House of

Representatives as HR 691. Rep. Roscoe Bartlett (R-MD) is the bill's co-sponsor. [A QRZ check did not list either representative as a ham.] It will first be considered by the House Energy and Commerce Committee, of which Rep. Bilirakis is vice-chair. Follow the progress of the bill and call it to the attention of your representatives. Remind them of how indispensable hams were for Florida this past fall, and how we participate in the NWS Skywarn program, among other public service activities. A downloadable PDF file of HR 691 is available on the Government Printing Office Web site <http://www.access.gpo.gov/index.html>.

* * *

Kansas State University ran a special event station, K0KSU for the *GlobalFlyer*. For those of you who have not watched the news, the *GlobalFlyer* was another radical aeronautical creation of Burt Rutan, of *SpaceShipOne* fame. Sponsored by Sir Richard Branson of Virgin Atlantic, millionaire adventurer Steve Fossett piloted the "flying fuel tank" on a solo, around-the-world, nonstop flight, starting and ending in Salina, Kansas. Special QSL cards bearing the *GlobalFlyer* were given to hams that had QSOs with K0KSU. Did you get a QSL card?

* * *

The Hartford Courant reports that a group of 50 amateur radio operators will be coming to town to participate in disaster training. The hams are participants in different ARES groups and they will train at the Newington, Connecticut Fire Department. Chuck Rexroad, AB1CR, ARES coordinator for Connecticut, noted that this will be the largest scale drill conducted in Connecticut. The focus of the drill is to show hams how to assist the Office of Emergency Management, the Red Cross, and work with the National Incident Management System. It will also prepare them for Top Off, an emergency preparedness drill that will involve Connecticut, New Jersey, and the Department of Homeland Security in April.

* * *

Bharati Prasad, VU2RBI, gained fame when her DX'pedition to Andaman Island (after wrestling for 14 years with Indian bureaucrats for permission to visit the archipelago) sent out the first reports of the Indian Ocean earthquake and tsunami. She has been named the 2nd annual recipient of the Lynch Memorial Award, given by the Tokyo International Amateur Radio Association. The Lynch Award is named for the late Sandy M. Lynch, W7BX and 7J1ABV, a longtime TIARA member. The award is given annually to one ham in the world who exemplifies Sandy's dedication to the hobby. "These traits include enthusiastic participation in a

radio club, bridging international cultures, activity in education or "Elmering", being active on-air, enthusiasm for new technology and fraternity," explained TIARA President Steven Herman, K7USJ & 7J1AIL.

* * *

And this from the "vast wasteland" of commercial television – this note was deposited in my email box. A couple of weeks ago, on the TV show "Survivor" the participants were given a task near and dear to our hobby. The challenge was to learn Morse code. They had to memorize dot-and-dash equivalents of letters from a study sheet. The following day, they had to retrieve mess kits underwater. Each kit had a letter in Morse code. The participants had to figure out a hidden code word from the mess kits they retrieved.

April Calendar

1 - RaRa Meeting – 7:30 PM - Henrietta Fire Hall,
3129 East Henrietta Road

8 - RVHFG – 7:30 PM, monthly meeting at Ogden
Town Hall, 269 Ogden Center Rd.

9 – Drumlins Amateur Radio Club Hamfest –
8:00AM, Marbletown Fire Hall, 6416 Silver
Hill Rd, Newark, New York

13 - BARK - 7:00 PM, monthly construction
meeting at KC2JKV, 1140 Peck Rd, Hilton

14 - RAPS – 7:30 PM, monthly meeting at RIT,
Bldg.-76, Room 2150

16 - RaRa Testing - Room 2150, Bldg. 76
RIT, Registration 8:30 AM

19 - RDXA – 7:30 PM, monthly meeting at Gander
Mountain, Jay Scutti Blvd.

27 - BARK – 7:00 PM monthly business meeting at
Seymour Public Library, Brockport

**May Rag Deadline
April 8, 2005**

RaRa Rag 20 Years Ago, April 1985

By Ed Gable, K2MP
RARA Historian

The April Meeting was the annual and very popular *Old Timer's Night*, this time hosted by Bruce Kelley, W2ICE. Bruce's topic was on the 1921 Transatlantic tests which proved to amateurs and professionals alike the potential of the unused short wave frequencies. Continuing a long time tradition, the door prize for the evening was a plush operating chair.

The Rochester Radio Repeater Association announced that their program would be a tour of the new County 911 center, arranged by Len Gessin, WA2ZNC. The RRRA Technical Director, Ron Jakubowski, K2RJ, announced that the .28/.88 repeater was now fully operational with its new RC-850 controller. Ed Holdsworth, N2EH, writing for the RaRa Licensing class, reported that the Spring classes totaled 61 students. This made busy time for the instructors who were: Ed K2MP, Bud, WA2UGE, Russ NE2B, Dave K2SQI and Ron K2RJ. N2EH also reported that two additional public service events were added to the schedule which now total nine in number.

Writing for the Rochester DX Association was Fred Gern, KB2SE, who reported an RDXA member just achieved WAC (Worked All Continents). Not a big deal, you say, as most capable DX'ers can do that in a few hours! In this case the DX'er did it on 144 MHz. Frank Polino, K2OS, achieved VHF WAC #13, using a modest 10 foot high antenna system. Keith Freeberg, N2BEL, wrote in this issue inviting RaRa members to a July campout at Springwater's *Holiday Hill*. That is separate from the RaRa Picnic, June 1st, at Powder Mill Park.

With regret it was reported that Linc Cundall, W2LC, became a silent key. Linc was a past RaRa and RVHFG president and co-founder of the Antique Wireless Association. He was first licensed in 1916 and held calls of 8ADI and W2QY. Also listed as silent keys were Ben Frommer W2RQF of Moravia, George Poppelwell WB2YHD and Sam Fontana WA2URB. A long term commercial advertiser remains Michael Rice (KB2SG) Attorney at Law. From the Want Ads you could buy a Kenwood TS-520 with all filters for \$450.00 from Len Gessin, WA2ZNC.

RaRa Hotline

(585) 442-0587

24 hours a day

RARA Explorer Posts 621 and 622, Part 2 of 2

By Peter Fournia, W2SKY
RARA Education Chairman

Part one in last months RAG introduced you to our two Explorer Posts: Post 621 "Electronics and Communications" and Post 622 "Amateur Radio Licensing and Wireless Communications Technology." They are cosponsored by RARA, Eastman Kodak and Otetiana Council of BSA. The names of 17 volunteers who directly participated in the posts were listed. Part 2 informs you of the results of these posts.

Post 621 focused on hands-on activities. This was accomplished in two ways. First, each session featured an electronics lesson that mixed theory with a lab exercise. The exercises used post equipment that includes a VOM, breadboard and components. Each volunteer instructor developed their lesson plan in a way that uses these materials along with a step by step guide that leads the explorer through construction and use of a circuit. The explorer makes measurements of the circuit in response to a question in the lesson plan. The 16 explorers were distributed among 4 tables with 2 teams per table and 2 explorers per team. At least 4 volunteers assisted with these lab exercises. Most lesson plans are on our explorer web site at www.rochesterham.org.

The second hands-on activity requires the explorer to select a kit from the Ramsey Electronics catalog and build the kit in 2 sessions. RARA subsidized part of the kit cost in the amount of \$10 to each explorer. Some explorers paid up to \$25 out of their pocket for larger kits. This approach was very popular and received highly favorable feedback. Many explorers went beyond our requirement by ordering additional kits to build at home. Although Post 622 did not require kits for their amateur radio license course, half of the explorers ordered them to build at home. We ordered a total of 34 kits from Ramsey Electronics. By pooling our order between the two posts we received a sizable discount from Ramsey Electronics. This discount will enable RARA to increase our subsidy next year and enable more advanced kits.

Feedback from the Post 621 group was highly favorable. From the 9 questions asked of the explorers we found it was highly worth their time and they would recommend the post to others. They better understood electronics, circuits and telecommunications and are more likely to pursue a career in these fields. They highly rated the instructors and the course content. In discussing what we could do better they indicated that a field

trip is desirable and they would like more content with logic, digital circuits, robotics and programming. We had volunteers from Microwave Data Systems who offered a field trip but schedules did not enable us to realize this opportunity.

Post 622 "Amateur Radio Licensing and Wireless Communications Technology" was also very successful. Nine people received their Technician class amateur radio license, about half of the people tested. This included one parent. During presentation of the amateur radio material we made reference to the general applicability in the telecommunications industry. We did not have a feedback session with this post so could not fairly evaluate their opinion nor receive improvements for the future. The explorers were made aware of local amateur radio resources including the monthly RARA testing held on the 3rd Saturday of each month. The RARA treasurer will send a follow up letter to these explorers with an invitation to the next RARA meeting.

I would like to again thank our many volunteers and supporters. This year was highly successful. We added a second post that directly brings amateur radio licensing to youth and parents. Our volunteer base was expanded by 50%. We have a kit source, Ramsey Electronics, that reduced our costs and enabled better kit selection. We gained participation from the amateur radio community via XARC and RVHFG. I have high expectations for next year.

DAYTON HAMVENTION BUS TRIP UPDATE

By Donald Dunn, AB2NM

In December's RAG, I solicited emails to assess the level of interest within the Club regarding a bus trip to Dayton. As of 31 January, I had received exactly two emails. There were a total of four people interested.

The bus holds 56 folks, so we were about 52 people 'short'. So, in a nut-shell, there was not a sufficient level of interest to warrant a bus to Dayton's Hamvention - at least for this year.

As the price of gas increases, the level of interest might also increase. As things go, an event like this does require some foresight and pre-planning. In conversation with the bus charter company, arrangements need to be set by March for a bus trip in May. That means that we need to begin discussions and planning around mid-January. Keep this in mind for 2006, and let your club officers know if you want your club to pursue this option in the future.

SCHOLARSHIP DEADLINE

by Jack Tripp, W2JAT

The deadline for submitting applications for the fifth annual RaRa Memorial Scholarship is April 15, 2005. The "Rochester Amateur Radio Association Memorial Scholarship" has been established with generous donations made in memory of A. Leland Zwack, W2WPF, William Buchan, W2OMV, William Resch, K4VOS and David Stewart, K2ZCD. The scholarship is available to any licensed Amateur Radio operator who is or will be pursuing any degree of Associate level or higher in any accredited school beyond high school. The individual must be a member of RaRa and a resident of New York State. The scholarship is for one individual for one year, but the recipient may reapply for subsequent years.

Applications for the scholarship may be obtained at RaRa general meetings, by mail at P.O. Box 93333, Rochester, NY 14692-8333 or by calling the RaRa phone at 442-0587. Additional information and a copy of the application are available on the Rochester Amateur Radio Association web site at <http://www.rochesterham.org/> or from one of the officers.

Additional "tax exempt donations" in memory W2WPF, W2OMV, K4VOS, K2ZCD or any other silent key may be sent to: Rochester Amateur Radio Association, Inc., Memorial Scholarship, P.O. Box 93333, Rochester, NY 14692-8333.

RRRA NEWS

By Brad Allen, KB2CHY

RRRA is planning to have a Hamfest/Fleamarket for the first time. We are still in need of people to be dedicated to help. Our goal is to have 12 people to do all the jobs necessary. We have a sweet deal possibility and I cannot commit the club to a site until we have the committee in place. To sign up to help, please visit our website at <http://www.rrra.5u.com>.

This time of year also brings the need for help for the talkin station that RRRA has run every year. This is a project that the club continues to do in Ray's WA2MYG's honor. We need people to run the talkin for as much time as you need to rest your feet during the hamfest. We provide all training, radio, mentors as well as food and drink. Come give us a hand at the RRRA trailer. Booth help is also needed. Contact any officer of the club for info on either of these items.

New RaRAa Life Members

By George Masny, KA2GPJ
Membership Chairman

The Board of Directors and the membership of the Rochester Amateur Radio Association would like to say 'Welcome' to our three new Life Members. They are Douglas E. Howard, KC2KNH, Gary E. Perkins, K2OU and Kevin J. Whitaker, KE2VN.

At the Annual Meeting in May a special presentation of "Life Member Certificates", cards and Name Tags will be made.

Life membership is available to any licensed amateur at a cost of 20 times the current annual dues. This is a good way to avoid any dues increases in the future as well as supporting the Memorial Scholarship. The scholarship is generated each year by the interest earned on the monies in the Scholarship account and the Life Member account.

WEBSTER PUBLIC LIBRARY NOW HAS QST AND QEX

By Donald Dunn, AB2NM

A generous one-year donation of QST and QEX has been received by the Webster Public Library from the ARRL. The donation began in January and will continue through 2005. The latest issue of each magazine is available for review within the library. Issues from previous months are available for check-out, or shipment to other branches of the Monroe County Library System.

QST is amateur radio's 'journal of record' containing a bit of everything including the latest news, equipment reviews, special events, contests, construction and theory. QEX provides an in-depth exploration of circuit and antenna design, construction and theory. Both are very well written, informative and extraordinarily useful publications!

The library staff will assess the circulation rate of each magazine at the end of the year and determine if a subscription will be paid for by the Library. The initial year was donated by the ARRL. If the local amateur community wants the library staff to consider adding magazines to their list of 'regular subscriptions', it is in our best interest to ensure these magazines are read and circulated frequently! It is really a "Use it or Lose it" proposition.

The Webster Public Library is located in the Webster Plaza, at 980 Ridge Road in the town of Webster. They also have a presence on the web at:

www.websterlibrary.org, or Contact them at 872-7075 for additional information.

RaRa Rag 6

RDXA Program April 19

By Rick Mintz, W1TY
President RDXA

Speakers: Andrew Burkhartzmeyer, NF2L and Chris Shalvoy, K2CS, "Logbook of the World"

Date & Time: April 19, 2005 - 7:30pm, Gander Mountain, 300 Jay Scutti Blvd. Henrietta

Additional information is available on the web at:

www.rdxa.com

The meeting is open to all Radio Amateurs.

HELP WANTED:

Two-way radio technician. Component level troubleshooting. Comfortable installing new equipment in vehicles and offices. Experience in SMD, transmission lines, connectors, system diagnostic troubleshooting techniques helpful. Good customer relations skills. E-mail resume and/or letter of interest to

sales@tadacom.com.

TADA Communications, Inc. 202 East Ridge Road, Rochester, NY 585-342-0716

Welcome New Advertisers

By Dick Goslee, KG2I

RaRa would like to welcome three new advertisers to the 'RAG'. They are Dick Jamison, WA2QDP, "Jamison Eye Care", George Masny, KA2GPJ, "Floral Memorials" and Jason Szklany, W2SSS, "Therapeutic Massage".

Support the advertisers that support RaRa.

RaRa Amateur Radio License Testing

**All Elements needed
to complete a license class.**

**3rd Saturday of each
month, Sept. - May
Registration - 8:30AM
Testing - 9:00AM**

**Room 2150, Building 76
(Park in Lot F)**

**Rochester Institute of Technology
1 Lomb Memorial Drive
Rochester, NY 14623**

**Contact Cheryl Joyce, AB2NU
For any special needs (585) 533-9252**

Floral Memorials

Cemetery Plot Beautification
& Maintenance

Gravesite Plantings at
All Local Cemeteries

585-905-9300

Also Available: Seasonal Wreath
& Special Occasion Bouquets

Remembrances

Operated by KA2GPJ & XYL

**Your Best Choice is
Cheryl Joyce for
all Your Real
Estate Needs!**



Cheryl Joyce

Sales Agent, AB2NU

Bus: 585-346-2332 x124

cjoyce@nothnagle.com

5820 Big Tree Road • Lakeville, NY 14480



Treat your YL or XYL ...
Therapeutic Massage

by Jason W2SSS

N.Y. State Licensed Massage Therapist

Trendz SALON & SPA

2132 Five Mile Line Road, Penfield

585.264.1760 for appointment

**Have you made your will?
Do you need a Living Trust?**

For Estate Planning

Call

Snyder and Snyder, Attorneys

Sherwood M. Snyder, W2KFU

Paul I. Snyder

Dependable Advice

No Charge for Consultation

183 E. Main St, Suite 1024, Rochester

(585) 546-7258

**Support The
Hams That Advertise in
the "RAG"**

Huge Savings

***Dental, Vision, Prescription
& Chiropractic***

Household Plan \$ 19.95 / Month

Singles Plan \$ 11.95 / Month

Your Independent Broker:

MARYKAY VESCO, KC2DPG

Kc2dpg@bluefrog.biz

(585) 381-7773

"America's # 1 provider of Discounted Benefits"

JAMISON EYE CARE

90 Erie Canal Drive

Rochester, NY 14626

(585) 225-5883

Richard R. Jamison, M.D. WA2QDP

Michele A. Jamison, M.D.

EYE EXAMS GLASSES

CATARACT LASER

GLAUCOMA

ROCHESTER HAMFEST

June 3-4-5, 2005

LET US HELP YOU PATENT YOUR INVENTION

HOWARD J. GREENWALD, P.C.

349 West Commercial Street, Suite 2490

East Rochester, New York 14445

Telephone: (585) 387-0285

Howard J. Greenwald, AB2HD, Patent Attorney
John M. Hammond, P.E., Patent Agent, Chemical Engineer
Peter J. Mikesell, Ph.D., Patent Agent, Chemist
Robert D. Gunderman, P.E., Electrical Engineer

NO CHARGE TO RaRa MEMBERS FOR CONSULTATION

GLENWOOD SALES

594 HAGUE STREET
ROCHESTER, NY 14606

HOURS:

M-F 9:00 AM - 5:00 PM

SAT 9:00 AM - 12:00 PM

PH: (585) 328-1600

FAX: (585) 328-3630

**ELECTRONIC
COMPONENT PARTS**

(NEW AND NEW SURPLUS)

- LARGE SELECTION
- HIGH QUALITY
- LOW PRICES
- IN-DEPTH INVENTORY
- WEEKLY SPECIAL BARGAINS

WE STOCK THE FOLLOWING:

AC CORDS
CAPACITORS
COAX CABLE
CONNECTORS
DIODES
ENCLOSURES
FANS
FUSES
FUSEHOLDERS

IC'S
LAMPS
LED'S
MOTORS
POTENTIOMETERS
RELAYS
RESISTORS
SCR'S
SHRINK TUBE

SOLDER
SWITCHES
TRANSISTORS
TRIACS
TRIMPOTS
VARIABLE CAPS
WIRE/CABLE
ZENER DIODES
LOTS MORE

FULL LINE DISTRIBUTORS FOR

NTE
PRB
GC/THORSEN
SL WABER
WAHL

Replacement Semi's
VCR Belts & Accy
Tools & Chemicals
Outlet Strips +
Soldering/Drilling
Tools & Accy

TYTON
PROTEK
MUELLER
GOLDSTAR
PALADIN

Cable Ties
Test Gear
Test Leads
Test Gear
Tools

TRY GLENWOOD FOR ALL YOUR COMPONENT REQUIREMENTS

Search our Inventory at "WWW.GLENWOODSALES.COM"